

## ABSTRACT

A method for controlling a watercraft includes acquiring a desired heading of the watercraft, acquiring an actual heading of the watercraft at time  $T_0$ , calculating a heading error by  
5 comparing the desired heading with the actual heading and determining a rate of change of the heading error. A P gain, I gain and D gain for use in maintaining the heading of the watercraft is determined and used to calculate factors related to heading error, cumulative heading error and rate of change of heading error. These factors are summed to form a control value for deflecting a nozzle of the watercraft to maintain a heading of the watercraft. Further embodiments include  
10 methods for calculating and correcting a heading of the watercraft, as well as methods for controlling roll out and sideways motion of the watercraft.